

STAPELIEAE FROM SOUTH TROPICAL AFRICA, II

L. C. LEACH & D. C. H. PLOWES

The identities of *Huernia kirkii* N. E. Brown and *H. hislopii* Turrill have long been confused; it is the purpose of this paper to clarify the whole position with regard to these and several other closely related taxa. *H. longituba* N. E. Brown and the subspecies from Cashel, S. Rhodesia are included as both have, at times, been confused with other members of the complex.

It has been stated by various authors that the intermediate lobes of *H. kirkii* are exceptionally large and are spreading or reflexed also that the lower part of the tube is marked within with broken concentric lines of colour on a cream ground.

Neither of the above characters is even mentioned by N. E. Brown and examination of the type disclosed no apparent trace of any lines within the tube while the intermediate lobes are very small. However, included in Turrill's original description of *H. hislopii*, are both lined tube and reflexed intermediate lobes.

The distribution of *H. kirkii* has been considered to extend to the vicinity of Bulawayo in S. Rhodesia; yet this species does not occur in this area but *H. hislopii* is comparatively common among the granite hills of the Matopos while *H. hislopii* subsp. *robusta* is quite frequent in the thorn bush and *Mopane* veld of the Bulawayo and Nyamandhlovu Districts.

The original description of *H. kirkii* clearly indicates a bicampanulate corolla; now that more material of *H. bicampanulata* Verdoorn has accumulated and become available for study, it appears that the distinctions drawn between that species and *H. kirkii* have all broken down. It seems therefore, that *H. bicampanulata* is synonymous with *H. kirkii* and that the apparent rarity of the latter species was due largely to the fact that the majority of later gatherings have been referred to *H. bicampanulata*.

Further complications were introduced when the identity of *H. hislopii* was confused with that of an, until now, undescribed species; this error caused *H. hislopii* to be accepted as an extremely variable species. The reversal of the keys in respect of *H. kirkii* and *H. hislopii* in both White & Sloane and Luckhoff also added to the confusion.

It appears therefore, that these misconceptions have arisen because of various incorrect interpretations of both *H. kirkii* and *H. hislopilii*; the subsequent continuance of these misconceptions was, no doubt, all the more readily accepted because of the relatively common occurrence and apparent variability of *H. hislopilii*, coupled with the apparent extreme rarity of *H. kirkii*.

The conclusions set out herein are drawn very largely from observations made of relatively large numbers of plants, both in the field and in cultivation over a period of several years. It has been noted that considerable as the variation within a community may be, individuals are (except for size of flower) remarkably constant and have remained so in cultivation over a number of successive flowerings.

A key to the taxa in the *H. kirkii* complex.

I. Inner corona lobes clavate.

A. Intermediate corolla lobes small (normally less than 1.5 mm. long); inner corona lobes usually somewhat recurved at the apex; papillae subulate up to 1.5 mm. long.

(i) Corolla lobes usually wider than long; tube not at all or only very obscurely concentrically lined within (usually uniformly dark purple); papillae rather slender, usually with a short acute mucro, sometimes with a short bristle; stems 4/5-angled *H. kirkii*

(ii) Corolla lobes $\pm$ deltate, $\pm$ as long as broad; base of tube distinctly concentrically lined; papillae slender, with an acute mucro.

(a) Papillae without setae; stems 4/5-angled *H. longituba*

(b) Papillae usually with setae; stems 5/6-angled.

H. longituba subsp. *cashelensis*

B. Intermediate corolla lobes large (c. 3 mm. long); inner corona lobes subclavate suberect; stems 5/7-angled *H. hislopilii* subsp. *robusta*

II. Inner corona lobes not clavate.

A. Intermediate corolla lobes large (c. 3 mm. long); inner corona lobes suberect, $\pm$ subulate; papillae stout, subclavate or obtuse, much widened at the base, up to 1.5 mm. high.

(i) Corolla lobes longer than broad, markedly attenuate; tube distinctly concentrically lined inside the globose-ampliate base, the throat shorter than the inflated portion; stems almost invariably 5-angled

H. hislopilii

(ii) Corolla lobes as long as or not very much longer than broad, attenuate but not very markedly so; tube only slightly ampliate, very obscurely lined within, the throat at least as long as the ampliate portion *H. hislopilii* subsp. *robusta*

B. Intermediate corolla lobes small (up to 2 mm. long).

- (i) Papillae slender, subulate; corolla lobes $\pm$ deltate, $\pm$ as long as broad; tube distinctly concentrically lined within; inner corona lobes obtuse, somewhat recurved.

(a) Papillae without setae; tube not at all ampliate; stems 4/5-angled *H. longituba*

(b) Papillae usually with setae; tube often very slightly ampliate; stems 5/6-angled *H. longituba* subsp. *cashelensis*

- (ii) Papillae very short, conical; inner corona lobes stoutly subulate, mounted low down on the staminal column with the base almost touching the outer corona; tube short, $\pm$ cylindric, shining dark purple within (no lines); stems long and slender (always less than 1 cm. diam.), 5-angled *H. occulta*

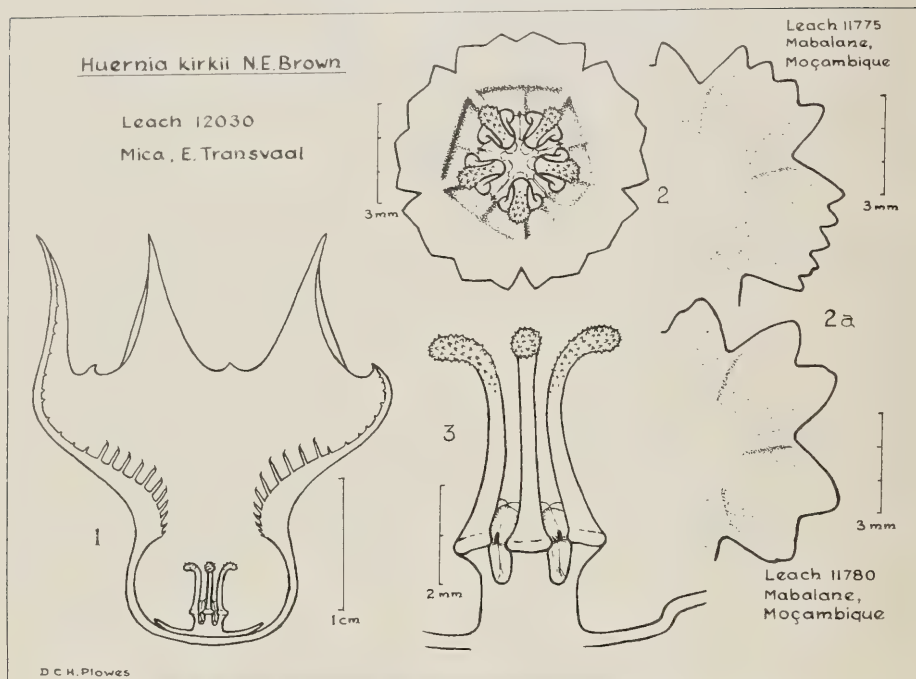
It has been found that dried material of the *Stapeliaceae* is often very difficult to interpret; many characters, obvious in the living plant, may be destroyed when the specimens are dried and pressed. In addition, individual aberrations may occur, e.g. a single plant of *H. longituba* collected near Lobatsi, shews inner corona lobes not clavate, all other characters remaining typically "*longituba*"; all other individuals from the same community and from elsewhere in Bechuanaland, now in cultivation at Nelspruit shew the distinctly clavate lobes typical of the species.

It is in an endeavour to cater for such difficulties and aberrations that as many characters as possible have been used in the key and some may well prove to be redundant in practice. The taxa generally have quite well defined distribution limits and should therefore, it is thought, present little diagnostic difficulty.

Huernia kirkii N. E. Brown in Th. Dyer, Fl. Cap. 4, 1 : 920 (1909).—A. Berger, Stapelieen und Kleinien: 170 (1910).—White & Sloane, The Stapeliaceae 3 : 942 (1937) pro parte excl. fig. 1002, 1004, 1005 et t.XXIX.—Jacobsen, Handbook Succ. Pl. 2 : 623 (1960), pro parte excl. fig. 825.—Type: S. Africa, Transvaal, Komatipoort, 1902, *J. W. C. Kirk* s.n. (K holotype).

H. bicampanulata Verdoorn in Fl. Pl. S. Afr. 12 : t.449 (1932).—White & Sloane, tom. cit.: 941 (1937).—Luckhoff, Stapeliaceae of S. Afr.: 219 (1952).—Jacobson, tom. cit.: 618 (1960).—Type: S. Africa, Transvaal, Pietersburg Distr., *G. van Son* s.n. in Nat. Herb. 10136 (PRE, holotype).

S. AFRICA. Transvaal, Barberton Distr.: Komatipoort, 1902, *J. W. C. Kirk* s.n. (K); Hyslops Creek, fl. 6. v. 1935, *G. W. Reynolds* 1293 (PRE). Pietersburg Distr.: Farm Naauwpoort, $\pm$ 30 miles S of Pietersburg, fl. Dec. 1927, *G. van Son* s.n. in Herb. Transv. Mus. 28055 (PRE), cult. PRE, fl. March 1930 (PRE); ibid. fl. Jan. 1931, *Bremekamp & Schweickerdt* s.n. (PRE), fl. March 1932, cult Transv. Mus. 30616 (PRE), fl. Jan. 1932, cult. PRE 11302 (PRE); ibid.,



cult PRE, *G. van Son* s.n. in Nat. Herb. 10136 (PRE), fl. 5. iii. 1933, cult. Transv. Mus. 31813 (PRE). Piet Retief Distr.: Pongola, fl. May 1936, *J. F. de Wet* s.n. (PRE). Nelspruit Distr.: Kruger Nat. Park, near Malelane, fl. 12. v. 1950, *L. E. Codd* 6095 (PRE; SRGH); Kr. Nat. Park, near Sabie, fl. 20. iii. 1953, *H. P. v. d. Schijff* 2420 (PRE). Pilgrimsrest Distr., near Strydom Tunnel, fl. 20. iv. 1960, *Schlieben & Strey* 8407 (PRE; SRGH). Lydenburg Distr.: cult. *N. S. Pillans*, fl. Apr. 1934, *C. W. Foster* in Herb. Bolus. 27699 (BOL). Tzaneen Distr.: Mica, *Acacia* savanna, fl. May 1962, *D. S. Hardy* 922 (PRE); *ibid.*, cult. NBG, fl. 10. iv. 1962, *J. W. S. Braine* in Herb. Compt. 60385 (NBG); *ibid.*, cult. Nelspr. fl. Jan. 1965, *L. C. Leach* 12017 & 12030 (K; PRE; SRGH).

MOZAMBIQUE. Sul do Save: Mabalande, cult. PRE & Nelspr., fl. 25. iii. 1964 & Jan. 1965, *Leach & Bayliss* 11775 (BM; COI; K; PRE; SRGH); *ibid.*, cult. NBG & Nelspr., fl. Feb. 1964 & Jan. 1965, *Leach & Bayliss* 11780 (BOL; G; LISC; NBG; PRE; SRGH); Limpopo Riv., near Pafuri, fl. 11. vii. 1964, cult. Nelspr., fl. Jan. 1965, *L. C. Leach, H. H. & D. C. Mockford* 12303 (CAH; LISC; K; PRE; SRGH).

The distribution of *H. kirkii* seems to be centred mainly on the lower Limpopo Riv. and its tributaries, in the E. Transvaal lowveld and the adjacent areas of Moçambique; the main concentration is, apparently, between Mabalane and Pafuri in Moçambique; literally masses of plants are to be found to the SE of Pafuri in association with numerous succulent and xerophytic species.

The species is rather rare in the region of the type locality (as commented on by Kirk) but more plentiful further to the N in the E. Transvaal; the locality for *L. E. Codd* 6095 seems to be the nearest of recent gatherings to that of the type, being only some 30 miles W of Komatipoort.

Considerable variations in the shape of the corolla may be found within a single community, e.g., *Leach & Bayliss* 11775 from Mabalane has a short, markedly pentagonal, parallel sided tube with a $\pm$ truncate base and an abruptly spreading limb with a narrow portion of the limb and lobes erect, while 11780 from the same locality has the "subglobose campanulate, constricted at the mouth" tube of the type, combined with a broad spreading limb and suberect lobes.

The lower part of the tube is usually unicoloured, shining dark purple although this may sometimes shew rather obscure transverse streaks of paler or whitish colour in individual specimens. The stems may be either 4 or 5-angled, both frequently occurring on the same plant.

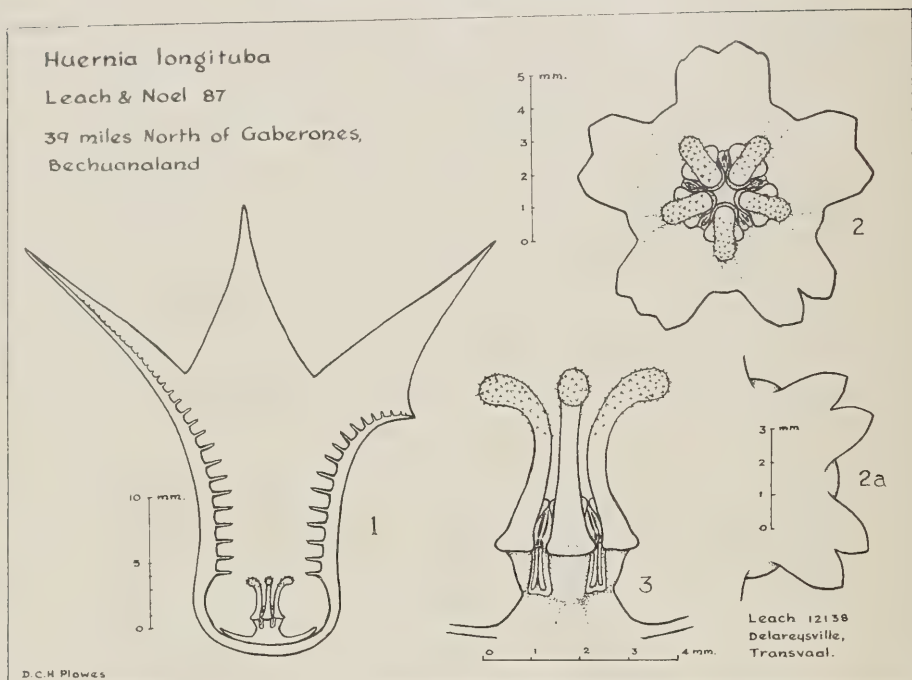
The plant figured in Fl. Pl. S. Afr. **12** : t. 442 (1932) was cultivated at Pretoria and is No. 10140 in the Nat. Herb., *J. J. van Nouhuys* s.n. "on shales near Barberton". This specimen appears to agree most closely with *H. hislopii* subsp. *robusta*; it is therefore thought likely that some confusion of plants in cultivation may have occurred as this taxon is not known to occur in the Transvaal.

Another specimen, *J. A. van Zyl* s.n. (PRE) also agrees very closely with the above; this, however, was collected from the Horticultural Research Station's rockeries at Nelspruit where succulent plants from many regions have been cultivated for a number of years.

The figures in both White & Sloane (*loc. cit.*) and Jacobsen (*loc. cit.*) appear to represent *H. hislopii* rather than *H. kirkii* while the notes regarding distribution and typical characteristics in both works seem to refer to a mixture of these taxa.

The *H. bicampanulata* of Bremek. & Oberm. in Ann. Transv. Mus. **16** : 429 (1935) is in fact *H. longituba* N. E. Brown.

Huernia longituba N. E. Brown in Th. Dyer, Fl. Cap. 4, 1: 912 (1909).—A. Berger, Stapelien und Kleinien: 171 (1910).—Phillips in Fl. Pl. S. Afr. 10: t.380 (1930).—White & Sloane, The Stapeliaceae, 3: 939 (1937).—Luckhoff, Stapeliaceae of S. Afr.: 218 (1952).—Jacobsen, Handbook Succ. Pl. 2:



625 (1960).—Type: S. Africa, Cape Prov., near Douglas, *Pillans* 609 (BOL, isotype).

H. bicampanulata sensu Bremek. & Oberm. in Ann. Transv. Mus. **16**: 429 (1935).

Subsp. *longituba*

In the subsp. *longituba* the papillae are usually tipped with a short acute mucro but are without any long bristles, the tube is not at all basally ampliate and the stems may be either 4 or 5-angled.

SOUTH AFRICA. Cape Prov., Barkly West Distr.: near Warrenton, fl. 27. iii. 1915, *I. B. Pole-Evans* s.n. (PRE); Holpan, *O. A. Leistner* 1528 (PRE). Herbert Distr.: near Douglas, fl. Apr. 1906, *Pillans* 609 (BOL). Kuruman Distr.: Kuruman, cult. NBG, fl. 13. iii. 1957, *H. Hall* in Herb. Compt. 66752 (NBG). Mafeking Distr.: Rooigrond, cult. Nelspr., fl. Jan. 1965, *R. D. Bayliss* in *Leach* 12139 (BOL; PRE). Vryburg Distr.: near Vryburg, fl. 5. iii. 1956, *B. Carp* in Herb. Compt. 44365 (NBG); *ibid.*, cult. Karroo Gard., in Herb.

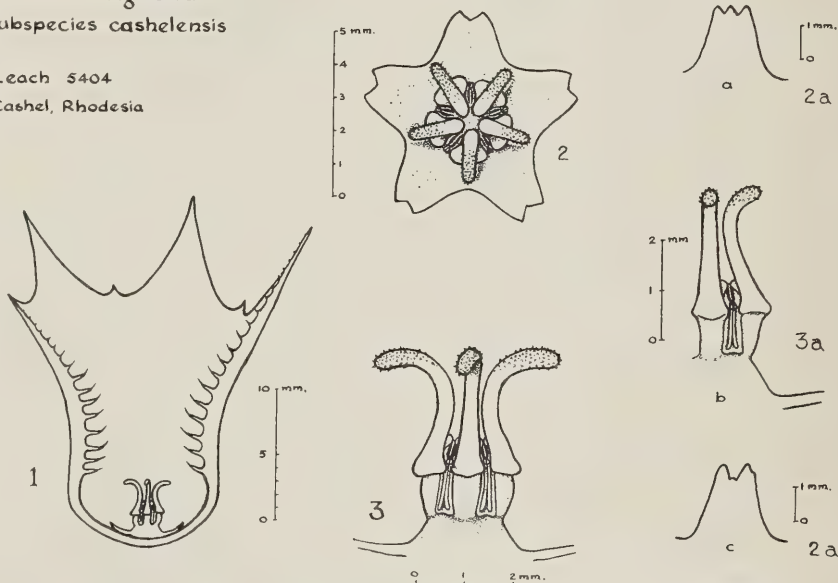


Compt. 66752 (NBG); between Vryburg and Schweizer Reneke, fl. 21. iii. 1960, *F. Prins* s.n. (PRE). O.F.S., Fauresmith Distr.: Fauresmith, fl. March 1927, *C. A. Smith* 3902A (PRE); Luckhoff, fl. Apr. 1943, *Freund* 67 (BOL). Transvaal, Lichtenburg Distr.: Delareysville, cult. Nelspr., *R. D. Bayliss* in *Leach* 12138 (BOL; K; PRE; SRGH).

BECHUANALAND PROT., SW: near Lehututu, cult. Bulawayo Mus. 421, *M. Paterson* s.n. (K); near Tsane, cult. Bul. Mus. 23, 425 & 427, *M. Paterson* s.n. (CAH; SRGH); *ibid.*, cult. NBG, fl. 16. i. 1957, in Herb. Compt. 44364 (NBG). SE; Kuke Pan, fl. March 1930, *G. van Son* in Herb. Transv. Mus. 28757 (PRE); near Molepolole, cult. PRE, fl. 6. i. 1955, *L. E. Codd* 8914 (PRE); *ibid.*, cult. Nelspr., fl. Feb. 1965, *Leach, Bayliss & Lamont* 12488 (G; K; LISC; PRE); 32 m. W of Kanye, fl. 18. i. 1960, *Leach & Noel* 204 (PRE; SRGH); between Gaberones and Artesia, fl. 15. i. 1960, *Leach & Noel* 83 (CAH; SRGH); *ibid.*, cult. Greendale, fl. 3. vi. 1960, *Leach & Noel* 232 (SRGH); near Lobatsi, cult. Greendale, fl. 22. ii. 1961, *Leach & Noel* 87 & 135 (SRGH); *ibid.*, cult. Nelspr., fl. Feb. 1965, *Leach, Bayliss & Lamont*

Huernia longituba
subspecies *cashelensis*

Leach 5404
Cashel, Rhodesia



D.C.H. Plowes

a, b, c - Plowes 2471
Mutambara, Rhodesia

12451 (BM; BOL; COI; G; K; LISC; PRE; SRGH), 12463 (BOL; PRE), 12473 (SRGH); near Mashupa, N of Kanye, cult. Nelspr., fl. Feb, 1965, Leach, Bayliss & Lamont 12468 (K), 12469 (BM; PRE; SRGH).

Subsp. *cashelensis* Leach & Plowes, subsp. nov.

A subspecies typica processis et papillis plerumque setis instructis, tubo saepe leviter ampliato, caulibus 5/6-angulatis differt.

TYPE: *L. C. Leach* 5404 (K; PRE, holotype; SRGH).

The subspecies *cashelensis* differs from the type in having the processes and papillae usually tipped with a stiff bristle, a tube which is frequently slightly basally ampliate and 5/6-angled stems. In length of tube, the extent to which the inner corona lobes are recurved, tuberculate, clavate or obtuse and in the length of the setae (which are frequently as long as the papillae), this subspecies is very variable.

S. RHODESIA. Melsetter Distr.: $\pm$ 6 miles W of Cashel, on bare stony slope in sparse deciduous scrub woodland, alt. c. 2750', cult. Greendale, fl. March 1958, cult. Pretoria, fl. 28. i. 1959, *L. C. Leach* 5404 (K; PRE; SRGH); Mutambara, fl. 15. ii. 1965, *D. C. H. Plowes* 2471 (SRGH).

H. longituba is by far the least confused of the taxa under consideration, nevertheless it has occasionally been mistakenly identified with one or other of the related species.

There seems little of consequence to add to the original description by N. E. Brown beyond the fact that the normally clavate inner corona lobes are minutely tuberculate.

There is considerable variation in the length of the tube and the extent to which the limb and lobes may be suberectly or widely spreading; the flowers, sometimes, when the lobes are suberect, presenting an almost equally 10-lobed aspect (despite the small size of the intermediate lobes), this being particularly evident in the subspecies *cashelensis*.

The distribution of the subsp. *longituba* extends from Douglas in the Northern Cape and Fauresmith in the O.F.S. more or less northwards into Bechuanaland Protectorate and the western Transvaal as far north as Mahalapye in Bechuanaland. There is, to date, no record of this taxon from Rhodesia; the disjunct distribution of the subsp. *cashelensis* does, however, occur in the Eastern Districts of that country where it seems to be confined to a relatively small area in the vicinity of Cashel. Plants are generally rather smaller than those of the typical subspecies and the smaller flowers are more orange coloured in appearance (due to the orange-red spots) and are more variable than those of the subsp. *longituba*.



*L. E. Codd 6095,
H. kirkii, Malelane,
E. Transvaal; near
type locality.
Photo: Dr L. E. Codd.*



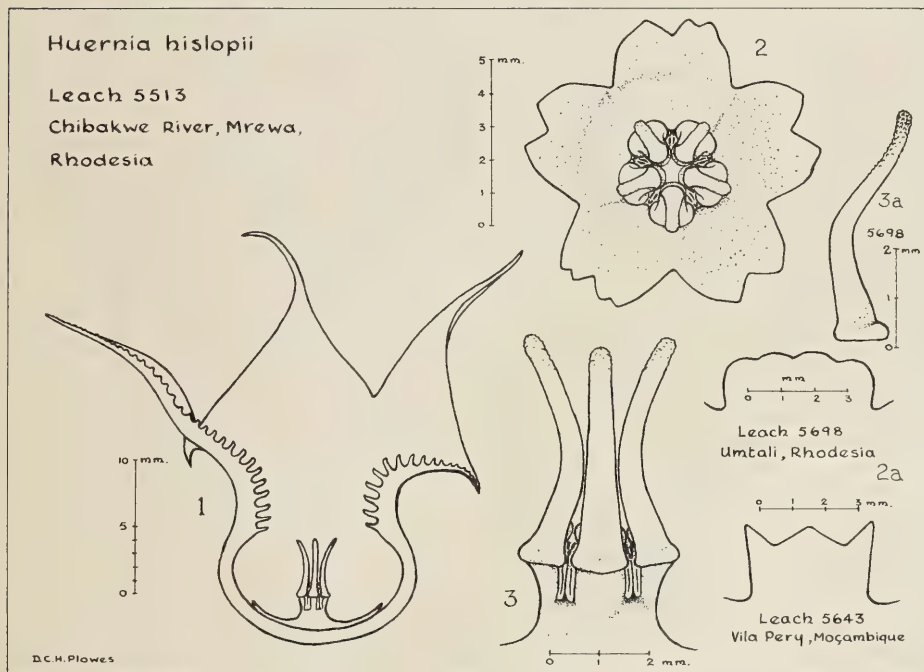
*Leach and Bayliss
11775, H. kirkii
from Mabalane,
Mozambique;
showing markedly
angular tube.
Photo: Botanical
Research Institute
Pretoria.*



*Variation in corollas, Mabalane community.
Photo: L. C. Leach.*



*Variation in corolla markings, Pafuri
community. Photo: L. C. Leach.*



S. RHODESIA. Bikita Distr.: 52 m. E of Fort Victoria, cult. NBG, fl. 1. iii. 1953, *E. Schelpe* in Herb. Compt. 44376 (NBG). Chibi Distr.: near Chibi Village, cult. Greendale, fl. Dec. 1957, *Leach* 5474 (SRGH); near Rhino Hotel, Lundi Riv., fl. 4. v. 1961, *R. B. Drummond & R. R-Smith* 7692 (SRGH); *ibid.*, fl. 5. xii. 1961, *Leach* 11297 (K; PRE; SRGH); *ibid.*, fl. 6. v. 1963, *Leach* 11646 (BM); Turgwi/Turkwana Riv. confluence, fl. 7. xii. 1961, *Leach* 11333 (SRGH). Goromanzi Distr.: Arcturus, Ewanrigg, fl. 22. i. 1932, *H. B. Christian* 5426 (PRE; SRGH); *ibid.*, fl. 5. vii. 1941, *I. C. Verdoorn* s.n. (PRE); Domboshawa, cult. Greendale, fl. 16. ii. 1958, *Leach* 5734 (SRGH); Gwanda Distr.: near Gwanda, cult. Bul. Mus. 33, fl. 27. x. 1956, *M. Paterson* s.n. (K). Marandellas Distr.: Digglefold, fl. 14. i. 1961, *H. Corby* 954 (SRGH); Matobo Distr.: Farm Boomerang, cult. Bul. Mus. 17, fl. 18. xii. 1956 (K); Absent Farm, cult. Bul. Mus. 29, *M. Paterson* s.n. (BOL); Old Gwanda Road, cult. Bul. Mus. 120 & 332, *M. Paterson* s.n. (CAH); *ibid.*, fl. 30. xi. 1963, *Leach & Bullock* 12001 (SRGH); *ibid.*, fl. March 1965, *Plowes & Bullock* 2489 (BOL; COI; K; SRGH); Matopos, "cult. Sherwood", fl. Dec. 1906, in Herb. Bolus. 10755 (BOL); E. Matopos, cult. NBG, fl. 22. ii. 1957, *R. Smithers* in Herb. Compt. 44375 (NBG). Mrewa Distr.: Chibakwe Riv., cult. Greendale, fl. Apr. 1957, *Leach* 5513 (SRGH); Shamba Riv. fl. 25. iv. 1960, *Leach* 9875 (PRE; SRGH). Ndanga Distr.: Zaka, fl. June 1950, *H. Hall* 106 (NBG); Nuanetsi Distr.: near Rhino Hotel, Lundi Riv., fl. 6. v. 1963 *Leach* 11642 (BM; BOL; G; K; PRE; SRGH). Inyanga Distr.: Inyanga North Res., fl. Feb. 1957, *Leach* 5646 (CAH; PRE; SRGH); without precise loc., cult. Bul. Mus. 49, fl. 16. xi. 1956, *M. Paterson* s.n. (CAH). Rusape Distr.: Rusapi, cult. NBG, fl. Apr. 1918, *A. Hislop* in Herb. Bolus. 10735 (BOL); without precise loc. (?Rusapi), cult. Hort. Bot. Reg. Kew. No. A191, 1920, *A. Hislop* s.n. (K); Salisbury Distr.: "on a kopje near Salisbury", fl. Feb. 1906, *J. Ffolliott-Darling* in Herb. Bolus. 10767 (BOL); Salisbury, cult. NBG, fl. 17. iv. 1941, *G. E. Clarkson* in Herb. Compt. 44380 (NBG). Shabani Distr.: Lundi Res., cult. PRE, fl. 10. xi. 1956, *D. Plowes* 1890 & 1895 (PRE). Umtali Distr.: Vumba, Norseland, fl. March 1949, *H. Wild* 2805 (K; SRGH); Zimunya Res., fl. Dec. 1952, *Watermeyer* s.n. (SRGH); 15 m. S of Umtali, cult. Greendale, fl. 9. xii. 1958, *Leach* 5698 (SRGH); Burma Valley, fl. 22. ii. 1962, *N. C. Chase* 7647 (SRGH). Victoria Distr.: Mushandike Riv., fl. March 1958, *Leach* 5747 (SRGH); Lake Kyle, fl. 5. xii. 1960, *Leach* 10552 (PRE; SRGH); Bangala Falls, cult., fl. 28. iii. 1965, *B. Baker* in *Leach* 12760 (PRE). "Kalahari Region" fl. June 1919, *S. Tapscott* in Herb. Bolus. 10735A (BOL).

MOZAMBIQUE. Manica e Sofala: Revue Riv., Vila de Manica, fl. 10. iii. 1948, *Garcia* in *Mendonça* 563 (LISC); Bandula, cult. PRE, fl. 18. ix. 1956, *Leach* 5644 (PRE; SRGH); near Mt. Zembe, cult. Greendale, fl. Feb. 1957 &

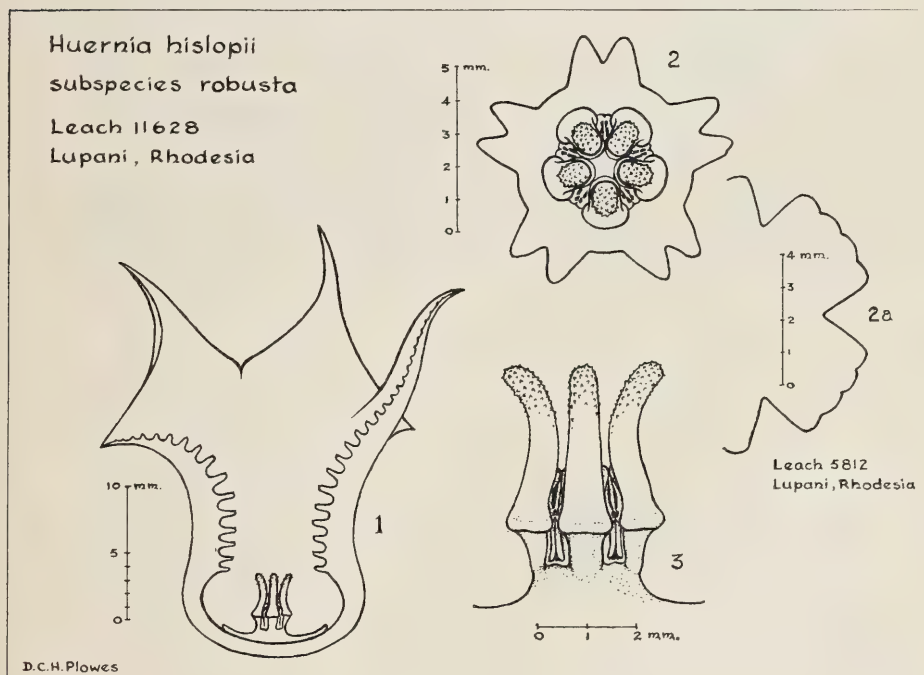
Feb. 1958, *Leach* 5643 (PRE; SRGH); near Vila Pery, cult, PRE and Greendale, fl. Sept. 1956 & Feb. 1958, *Leach* 5642 (K; PRE, SRGH); near Vila de Manica, cult. Greendale, fl. Feb. 1957, *Leach* 5645 (CAH; LISC; SRGH); *ibid.*, fl. 23. v. 1960, *Leach* 9954 (SRGH).

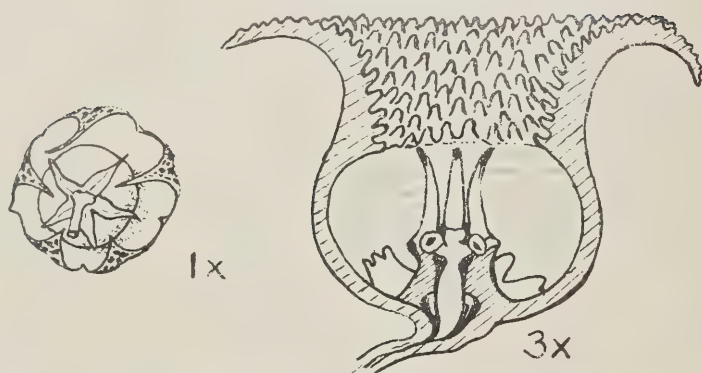
Subsp. **robusta** Leach & Plowes, subsp. nov.

A subspecies typica basi tubi tantum leviter ampliata intus paulo obscurilineata, fauce plerumque longiore quam parte ampliata, lobis corollae plus minusve deltatis plerumque tantum breviter attenuatis, caulibus 5/7-angulatis differt.

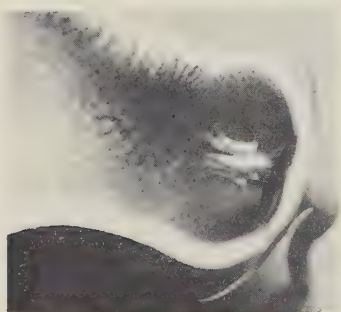
TYPE: *L. C. Leach* 11628 (BM; CAH; G; K; LISC; PRE; SRGH, holotype).

The tube of the subsp. *robusta* is only slightly basally ampliate, very obscurely concentrically lined within and has the throat at least as long as the ampliate portion; the corolla lobes are about as long as or very little longer than broad and are comparatively shortly attenuate; the stems are 5/7-angled.



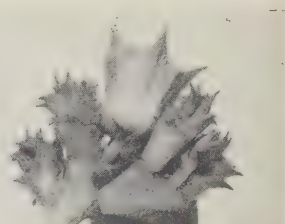
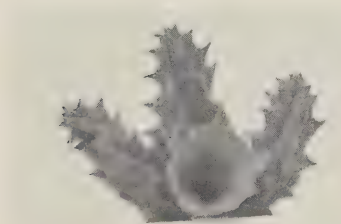


A copy of the drawing by Miss D. K. Hughes, from the type sheet of *H. hislopilii*.



H. hislopilii subsp. *robusta*. Plowes 1699 Plant from Nyamandhlovu, S. Rhodesia.

Photo: D. C. H. Plowes.



H. longituba subsp. *cashelensis*. Clone of the type plant. Leach 5404.

Photo: L. C. Leach.

S. RHODESIA. Gokwe Distr.: Charama Road, cult. Gokwe, fl. Oct. 1963, *M. G. Bingham* 874 (SRGH). Lupani Distr.: Mabikwa, fl. 1. iv. 1963, *Leach* 11628 (SRGH), idem, cult. Nelspr., fl. Jan. 1965 (BM; CAH; G; K; LISC; PRE; SRGH); ibid., cult. Greendale, fl. 9. iv. 1960 *Leach* 9835 (SRGH); ibid., cult. Nelspr., fl. Jan. 1965, *Leach* 12112, 3 & 4 (BOL; K; PRE; SRGH). Nkai Distr.: Shangani Res., Bulawayo Mus. 110 (BOL). Nyamandhlovu Distr.: Bongolo Farm, fl. March 1954, *D. C. Plowes* 1699 (PRE; SRGH); Galeta's Kraal, fl. Jan. 1956, *D. C. Plowes* 1910 (PRE); ibid., cult. Bul. Mus. 44, *M. Paterson* s.n. (BM); Sawmills, cult. Bul. Mus. 316, 317 & 319, *M. Paterson* s.n. (G; K; LISC; PRE; SRGH); near Bulawayo, cult. PRE & Greendale, in *Leach* 9971 (SRGH).

Huernia hislopii is essentially a Rhodesian plant, with a distribution not known to extend beyond that country's borders, except for a small extension into a limited area of Moçambique adjacent to the Umtali District.

The known habitats of this subspecies are almost entirely confined to the granite kopje areas of the country; plants are probably most plentiful in the Victoria District.

The type plant was sent to Kew, without locality, by Mr. A. Hislop of St. Faith's Mission, Rusapi; it seems likely that this would have been collected in the vicinity of Rusapi, in which area, plants typical of the subspecies are known to occur. This supposition appears to be confirmed by the locality given for the Hislop material in the Bolus Herbarium.

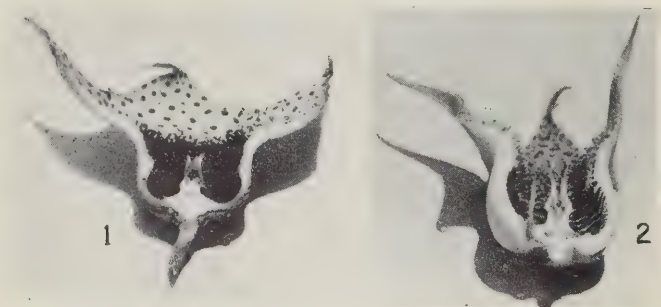
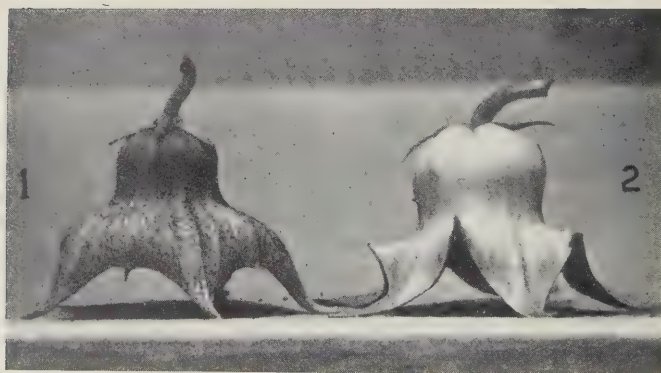
There seems nothing to add to the original description of this taxon which would in any way clarify the position beyond mentioning, that in nature, flowers are produced successively from a point and are never solitary as was the case with the type plant cultivated at Kew.

The distribution of the subsp. *robusta* extends more or less northwards from Bulawayo, as far as Lupane to the NW and Gokwe to the NE, an area where the subsp. *hislopii* is not known to occur; plants are found mainly on the sandy or gravelly soils of the thorn bush and *Mopane* veld. A slight possibility exists that this taxon may eventually be found to have a disjunct extension in the Eastern Transvaal (see note relating to cultivated specimens *J. J. van Nouhuys* and *J. A. van Zyl*, under *H. kirkii*).

Plants of the subsp. *robusta* are generally larger and more robust than those of the typical subspecies and are much more variable, some specimens superficially appearing to resemble *H. longituba* more closely than *H. hislopii*. However, it is considered that the form of the inner corona and particularly of the papillae definitely places this taxon in closer relationship with the latter species than with any other member of the complex; occasionally specimens, especially when dried, do exhibit very slightly clavate inner corona lobes and for this reason it has been included in both sections of the key.



H. occulta shewing slender stems.



A comparison of the corallas of 1. *H. occulta* & 2. *H. hislopii*.

There is considerable variation of both size and shape of the outer corona lobes; this, however, is a factor common to most species of the genus and one which renders the outer corona relatively useless for diagnostic purposes; some of the most distinct variations are shewn in the sketches of *H. hislopii* and *H. kirkii*.

The plant figured in F1. Pl. S. Afr. **19**: t. 758 (1939) is not *H. hislopii* but is a new species (*H. occulta*), now described elsewhere in this paper.

The notes in White & Sloane (*loc. cit.*) concerning typical characteristics refer apparently to a mixture of *H. hislopii* and *H. occulta*.

Huernia occulta Leach & Plowes, sp. nov.

H. hislopii sensu White & Sloane, The Stapelieae **3**: 945 (1937) pro parte quoad fig. 1007.—Phillips in F1. Pl. S. Afr., **19**: t. 758 (1939).

H. hislopii Turrill affinis sed caulibus multo tenuioribus longioribus repentibus, limbo corollae late pateriformi, papillis minoribus et minus confertis, tubo brevioris, extus plus minusve cylindrico, base lorum coronae interioris obtuso plerumque sine gibba transversa multo propiore coronam exteriorem differt.

Planta repens succulenta perennis, caulibus tenuibus. *Caules* glabri virides valde sulcati, angulis 5 obtusis, usque 32 cm. longi, 3—9 mm. diam., dentibus acutis patentibus 1—3 mm. altis, 1—3 cm. distantibus. *Bractae* attenuatae 2—4 mm. longae, 0.5—0.75 mm. latae. *Pedicelli* teretes glabri 12—24 mm. longi, c. 1.5 mm. diam., *Sepala* anguste ovata acuminata glabra 6—8 mm. longa, 1.5 mm. lata. *Flores* pallide lutei maculis fulvo-sanguineis punctati, deinceps aperiens versus basem caulium juvenum parce producti. *Corolla* bicampanulata, extus versus basem plerumque leviter scabra deinde paene glabra; intus tubi pars inferior glabra fulgida atropurpurea, fauce et circum os papillis conicis dense induta, limbo et lobis papillis brevioribus parce indutis; tubus ad basem aliquantum truncatus, extra plus minusve cylindricus, ore interdum perleviter constrictus, c. 7.5 mm. longus, 10 mm. diam.; limbus pateriformis, c. 2.25 cm. diam.; lobi deltati acuminati, c. 12 mm. lati, 13 mm. longi, suberecti vel patuli, apicibus plerumque aliquantum recurvis, margine minute tuberculato; lobi intermedii parvi acuti. *Corona* exterior c. 8 mm. diam. basi tubi adpressa, fusco-purpurea dense minutissime tuberculata, lobis 5, subquadratis obtusis valde emarginatis, *Coronae interioris* lobi glabri, c. 3.5 mm. longi, suberecti crassi suberecti conniventes, superne aliquantum abrupte attenuati apicibus leviter divergentibus (raro recurvis) minutissime obtuso-tuberculatis vel minutissime rugulosis, haud clavatis, basibus paene ad coronam exteriorem attingentibus obtusis plerumque sine gibba transversa.

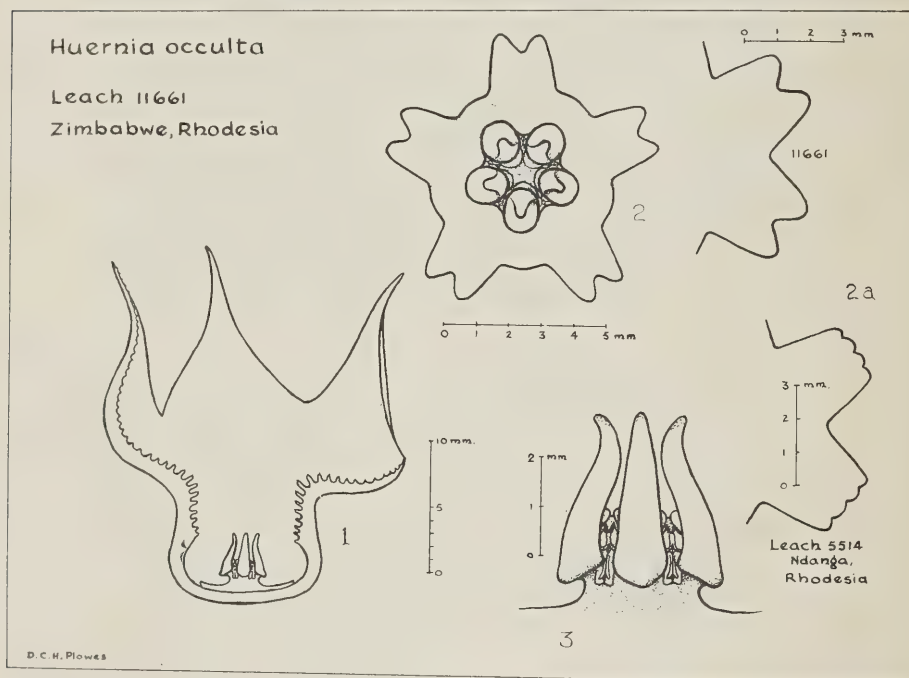
TYPE: *L. C. Leach* 11661 (K; PRE; SRGH, holotype).

S. RHODESIA. Victoria Distr.: hills between Umvuma and Fort Victoria,

cult. PRE, *G. van Son* in Nat. Herb. 20156 (PRE); *ibid.*, cult. Transv. Mus., fl. Nov. 1932, Jan. & Feb. 1934, *G. van Son* in Herb. Transv. Mus. 31057A, B & C (PRE); "Fort Victoria area", cult. PRE, fl. 10. xi. 1953, *G. C. Reyneke* 5 (PRE; SRGH); near Zimbabwe, cult. Greendale, fl. 27. iii. 1958, *L. C. Leach* 5746 (BM; SRGH); *ibid.*, on granite slope, amongst perennial grasses with various succulent species, *L. C. Leach* 11661 (K; PRE; SRGH); *ibid.*, cult. Bul. Mus. 504, *M. Paterson* s.n. (CAH). Ndanga Distr.: near Ndanga, cult. Greendale, fl. 20. iv. 1958, *L. C. Leach* 5514 (SRGH).

This species is also reported from the Matopos Hills, Matobo District, by Mrs. B. Ball (M. Paterson) but unfortunately no material has been preserved.

Huernia occulta is a very distinctive species, most closely related to *H. hislopii*; it is very easily distinguished from that species by its long very slender creeping stems. The handsome flowers with their very much smaller "Huernia teeth" and rather shallow more or less cylindric tube which is shining dark purple inside also contrast sharply with those of *H. hislopii* which have long reflexed intermediate lobes and an inflated concentrically lined tube. There



are also considerable differences in the coronas and in the papillation of the two species.

The name *occulta* was chosen primarily because of its habit of growing and producing its flowers in very heavy shade, the plants remaining almost completely hidden at all stages of growth and secondly because its identity had for so long been concealed by its confusion with *H. hislopilii*.

Plant a succulent perennial herb with slender branching stems creeping among grasses, rooting where touching the soil. *Stems* glabrous, green, deeply sulcate with 5 rounded angles, up to 32 cm. long, 3—9 mm. diam. with acute spreading teeth 1—3 mm. high, 1—3 cm. apart along the angles. *Bracts* attenuate 2—4 mm. long, 0.5—0.75 mm. wide. *Pedicels* terete, 12—24 mm. long, c. 1.5 mm. diam., glabrous. *Sepals* very narrowly ovate acuminate 6—8 mm. long, 1.5 mm. wide, obtuse beneath, glabrous. *Flowers* cream with many tawny red spots on the limb and lobes with the base of the tube shining blackish purple, produced sparingly successively from towards the base of the young stems. *Corolla* bicampanulate, generally slightly scabrid outside towards the base, becoming almost completely glabrous on the lobes; the lower portion of the inside of the tube glabrous, with the throat and around the mouth densely covered with more or less conical papillae, the remainder of the limb and lobes less densely covered with very much shorter papillae (the two kinds intermingled around the mouth) and the margins minutely tuberculate; tube more or less cylindric outside, occasionally very slightly constricted towards the mouth, generally somewhat truncate at the base, c. 7.5 mm. long, 10 mm. diam.; the shallowly saucer shaped limb spreads rather abruptly from the mouth of the tube and is about 2.25 cm. diam. to the base of the lobes; lobes deltate acuminate, suberect or spreading with the apices usually somewhat recurved, the outer surface 5-nerved, the median nerve prominently ridged, c. 12 mm. broad at the base, c. 13 mm. long; intermediate lobes small, acute, spreading (erect in bud) 1—1.5 mm. long. *Outer corona* densely microscopically tuberculate, closely adpressed to the base of the tube, c. 8 mm. diam., with 5 sub-quadrate deeply emarginate obtuse lobes. *Inner corona*: lobes c. 3.5 mm. long, subterete, stout, suberect, connivent, tapering rather sharply in the apical third to the slightly divergent (rarely recurved), minutely obtusely tuberculate or minutely rugulose apices, which are not at all clavate; the inner corona is mounted low down on the staminal column so that the obtuse base of the lobes is very close to, sometimes almost touching, the surface of the outer corona.

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